

Amendments to the Claims:

1-3. (Canceled)

4. (Currently amended) A method for the mineralization of ~~of making mineralized~~ nanofibers, the method comprising: preparing a first solution with at least one peptide amphiphile comprising a C₆ or greater hydrocarbon component at its N-terminus and a lyophilic peptide component, wherein the peptide amphiphile has a positive or negative ~~net-ionic~~ charge and at least one ion of a mineral salt, wherein the ion of the mineral salt has the same ~~signed net-ionic~~ charge as the peptide-amphiphile; preparing a second solution with ion of a mineral salt having an opposite signed ionic charge to the ~~net-ionic~~ charge of the peptide-amphiphile of said first solution; and mixing said first and second solutions to self-assemble said peptide amphiphiles into nanofibers and a nanofiber gel, wherein said mineralization occurs from initially dissolved mineral cations and anions along minerals nucleate ~~at~~ the nanofibers surfaces, wherein said nanofibers are fibrous cylindrical micelles.

5. (Previously amended) The method claim 4 further comprising: aging the mixture of said first and second solutions to control the size and rate of growth of said minerals on the self-assembled peptide amphiphile nanofibers.

6. (Original) The method of claim 4 further comprising: adjusting the pH of one of the solutions prior to mixing them together.

7-11. (Canceled)

12. (Currently amended) The method of claim 4, wherein said mineral cations and anions ~~minerals~~ are selected from the group consisting of hydroxyapatite, fluoroapatite, calcium oxalate, calcite, tin hydrogen phosphate, iron oxides, iron hydroxides, iron oxyhydroxyoxides, titanium dioxide, and zinc oxide.

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13. (Previously amended) The method of claim 12, wherein the mineral is hydroxyapatite.

14. (Previously added) The method of claim 4, wherein the peptide-amphiphile has a net negative charge.